



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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DOCUMENT

Ref: 8EPR-SR

ACTION MEMORANDUM

SUBJECT: Request for a Non-Time Critical Removal Action at the
Vasquez Boulevard/Interstate 70 Environmental Justice NPL Site, Denver County,
Denver, Colorado

FROM: Bonnie Lavelle
Remedial Project Manager

THROUGH: Dale Vodehnal, Manager
Superfund Remedial Program

TO: Max Dodson
Assistant Regional Administrator
Ecosystems Protection and Remediation

I. PURPOSE

The purpose of this Action Memorandum is to request approval for the proposed non-time-critical removal action described herein for Operable Unit 1 (OU-1) of the Vasquez Boulevard/Interstate 70 (VB/I-70) Site located in the City and County of Denver, Colorado. The proposed non-time-critical removal action is deemed appropriate with respect to provisions of the National Contingency Plan (40 CFR Part 300.415(b)(2)). Based on the findings of environmental investigations conducted from 1998 - 2001, there is potential for exposure of the resident human population to the contaminants arsenic and/or lead in the surface soils of yards in OU-1 of the VB/I-70 Site. The exposure is predicted to result in an unacceptable risk of adverse health effects to children and adult residents exposed under reasonable maximum exposure conditions. EPA has determined that the VB/I-70 Site is an Environmental Justice (EJ) Site. The basis for that determination is contained herein.



The second purpose of this Action Memorandum is to request approval for an exemption to the \$2 million statutory limitation on removal actions. The basis for the exemption is that the proposed non-time-critical removal action, i.e., removal and replacement of residential soils at the properties with the highest potential human health risk, is appropriate and consistent with the final remedial action to be taken at OU-1 of VB/I-70. The final remedial action for OU-1 will include removal and replacement of residential soils at additional properties where predicted risks are lower but still deemed to be unacceptable by EPA. A Proposed Plan for OU-1 is currently under development by EPA Region VIII. The preferred remedial alternative identified in the Proposed Plan includes soil removal and replacement at action levels lower than those selected in this non-time critical removal action.

II. SITE CONDITIONS AND BACKGROUND

A. Site Description

1. Removal Site Evaluation

The CERCLIS identification number for the VB/I-70 Site is CO0002259588. OU-1 encompasses 4.5 square miles and four neighborhoods in north-central Denver that are largely residential: Swansea, Elyria, Clayton, and Cole. OU-1 also includes the southwest portion of the Globeville neighborhood. Figure 1 is a map of the area.

The VB/I-70 Site is located in an area of Denver that was historically a center for the smelting industry. The 3 historic smelters in the vicinity are:

1. The former Omaha & Grant Smelter was located at approximately 42nd Avenue and St. Vincent Street, bordering the South Platte River south of I-70 and the existing Denver Coliseum. The smelter was built in 1882 on approximately 67 acres and operated by Asarco from 1899 until 1902, using a lead smelting process to produce gold, silver, copper, and lead (Asarco, 2001).
2. The former Argo Smelter was located at approximately 47th Avenue and Fox Street, west of I-25. The smelter was built in 1878 and operated until 1906. The smelter utilized the "Swansea" method, which recovered gold and silver from ores by means of a copper matte. The method was developed in Wales and had never been used in the United States before. The smelter produced gold, silver, and copper. The Argo never operated as a lead smelter. (Klodt, 1952).
3. The Globe Smelter has been operating at its current location at 51st Avenue and Washington Street since 1886. The plant began operations as the Holden Smelter in 1886. That name was later changed to the Globe Smelting and Refining Company to reflect the multi-ethnic population that made up the workforce. The Globe Smelting and Refining Company was one of several plants consolidated in 1899 into the American Smelting and Refining Company, now known as Asarco Incorporated. The Globe Plant

was operated as a lead smelter from 1901 through 1919. Lead smelting was replaced by the production of arsenic trioxide, a compound used in alloys, insecticides, medicines, and glass. Arsenic trioxide production continued from 1919 to 1926. In 1926, the Globe Plant ceased production of arsenic trioxide and began producing cadmium, a metallic by-product of zinc and lead. Large scale cadmium metal production ceased in 1991; however, cadmium oxide and cadmium powder production continued until 1993.

Current operations at the Globe Plant focus on the production of small quantities of high-purity metals and speciality chemicals used in a variety of industries. The Globe Plant produces cadmium sulfide and cadmium telluride (specialty chemicals used in the manufacture of photovoltaic cells), litharge (lead oxide), and refines the metals bismuth, tellurium, antimony, and selenium.

The Globe Smelter is not part of the VB/I-70 Site, but rather is within a different NPL site, the Globe Site. It is the subject of a separate cleanup being conducted by Asarco and overseen by the Colorado Department of Public Health and Environment (CDPHE) under the terms of a 1993 consent decree. The cleanup has resulted in remediation of soils in more than 550 Globeville residential properties to date. There is also an ongoing remediation of sources of groundwater contamination on the plant site.

The source of arsenic and lead in the soil of impacted residential properties in the VB/I-70 Site is not known. The levels of arsenic and lead could not be explained by modeling of air emissions from the Globe Smelter (Asarco, 1998). Alternative sources currently being investigated by EPA are: (1) air emissions from historic smelter operations at the Omaha and Grant and/or Argo smelters; (2) placement of fill material from locations contaminated with waste from smelter operations at the Globe, Argo, and/or Omaha and Grant smelters; or (3) application of lawn care products formulated with arsenic and lead that were commercially available during the 1950's through the early 1970's.

2. Physical Location

The boundaries of OU-1 are Martin Luther King Boulevard on the south, East 52nd Avenue on the north, Colorado and Vasquez Boulevards on the east and the South Platte River on the west, and include the southwest portion of Globeville.

There are approximately 4,000 residential properties, ten schools, and seven parks within OU1. Most residences are single family dwellings. There are also some multi-family homes and apartment buildings.

According to the 2000 census, the total population living within the VB/I-70 study area is 17,545. The racial composition of the population is:

White Alone	5442	31%
Black Alone	3698	21%
American Indian, Alaska Native Alone	274	2%
Asian Alone	168	0.1%
Hawaiian & Other Pacific Islander Alone	8	0.05%
Other Race Alone	7304	42%
Two or More Races	648	4%

Many people of Hispanic origin chose the "other race" category in the census. In response to a separate question in the census, 12,102, or 69% of people who live within OU-1 identified themselves as being of Hispanic origin. Also according to the 2000 census, there are approximately 2400 children 6 years old or younger who live within OU-1 (ATSDR, 2002).

A higher percentage of ethnic minorities reside in the VB/I-70 site compared to Denver city-wide and average household incomes are lower in the VB/I-70 site when compared to Denver city-wide (Piton Foundation, 2002).

EPA has determined that the VB/I-70 site is an EJ Site because the community is predominantly low income and minority and is disproportionately affected by environmental impacts from many sources including industry, other Superfund sites, and the major transportation corridors Interstate 25 and Interstate 70.

3. Site Characteristics

OU-1 is narrowly defined as only those residential yards with levels of lead or arsenic in soil that present an unacceptable risk to human health. While numerous commercial and industrial properties are also located within OU-1, these properties are not considered to be part of the VB/I-70 site.

A total of 143 residential properties in OU-1 are known to have concentrations of lead and/or arsenic in soil that are predicted to pose health risks to children and adult residents exposed under reasonable maximum exposure conditions that are above EPA's acceptable risk range. The non-time-critical removal action described in this Memorandum addresses these 143 properties. This total number of properties includes 5 properties previously targeted for time critical removal action, where access to perform the work was denied by the property owners. Table 1 provides the addresses of the 143 properties targeted for the proposed non-time critical removal action.

4. Release or Threatened Release into the environment of a hazardous substance, or pollutant or contaminant

The VB/I-70 Site came to the attention of EPA following studies conducted by the Colorado Department of Public Health and Environment (CDPHE). In these studies, CDPHE collected soil samples from 25 homes in the Elyria and Swansea neighborhoods and identified elevated concentrations of arsenic and lead (CDPHE, 1997). Arsenic concentrations in soils ranged from below the detection limit to 1800 parts per million (ppm) and lead concentrations in soils ranged 39 ppm to 754 ppm. As a result of the soil sampling, in 1997, CDPHE requested EPA's assistance in performing a more complete study of soil in the area.

In response to CDPHE's 1997 request, the EPA Region VIII Emergency Response program conducted two sampling programs at the Site during 1998. The boundaries of the initial study area were established as East 38th Avenue on the south, East 52nd Avenue on the north, Colorado and Vasquez Boulevards on the east and the South Platte River on the west, and included the southwest portion of Globeville.

The initial sampling program, known as Phase I, was performed during March and April 1998 and was designed chiefly to support a decision about whether time critical removal actions were necessary. Using the Phase I sampling results, EPA identified arsenic and lead as the contaminants of concern in soil. Thirty-seven properties were potential candidates for time critical removal action based on the maximum concentration of either arsenic or lead in residential surface soils (EPA, 1998). Any residential property which had a maximum surface soil concentration equal to or greater than 450 ppm for arsenic or 2000 ppm for lead was a potential candidate for time critical removal action.

EPA determined that before time critical removal actions were conducted at these properties, they should be revisited and additional soil samples should be collected to obtain a more confident estimate of the yard-wide average concentrations of lead and arsenic. EPA collected the required additional samples in a sampling program implemented in 1998, called the Phase II investigation. Additional soil samples were collected from any residential property which had a maximum surface soil concentration equal to or greater than 450 ppm for arsenic or 2000 ppm for lead. A 5-point composite sample was collected from the front yard and a second 5-point composite sample was collected from the back yard of each property. Arsenic and lead levels in these soil samples were then analyzed. Any property with one or more composite samples exceeding the time critical removal action levels for either arsenic (450 ppm) or lead (2000 ppm) was identified for soil removal.

The EPA Emergency Response Program proceeded with a Phase II sampling program in July and August 1998, within an expanded study area extending south to East 35th Avenue. Properties not sampled during Phase I were targeted for sampling using the Phase I protocols. As a result of the Phase II program, 21 properties were identified for time critical removal actions. Removals were completed at 18 properties where EPA obtained access (EPA 1998). Owners of three properties denied EPA access to conduct a time critical removal action.

One thousand three hundred ninety three (1,393) properties were sampled as part of the Phase I and II programs, including four schools and seven parks. Five thousand one hundred thirty five (5,135) individual soil samples were collected.

5. National Priority List (NPL) Status

Based on the results of the Phase I and Phase II sampling programs, EPA determined that residential properties within the VB/I-70 Site contained concentrations of arsenic or lead at levels that could present unacceptable health risks to residents with long term exposures. EPA proposed the VB/I-70 Site for inclusion on the Superfund National Priorities List (NPL) in January 1999. EPA added the VB/I-70 Site to the NPL on July 22, 1999 (FR 1999).

In order to manage the Site effectively, the remedial program organized the VB/I-70 Site into 3 operable units (OUs). Separate investigations will be conducted and separate remedies will be selected for each. The OUs are:

Operable Unit 1 (OU1) is defined as residential yards within the study area with levels of lead or arsenic in soil that present an unacceptable risk to human health. EPA's highest priority in the VB/I-70 Site is OU1 because there is the highest potential for exposure to the human population in the residential yards.

Operable Unit 2 (OU2) is defined as the location of the former Omaha & Grant Smelter and includes all environmental media impacted by releases of hazardous substances that resulted from the operation of the smelter. EPA's second priority in the VB/I-70 Site is OU2, since it presents a lower potential for exposure to the human population. The majority of the OU2 area is paved and has been extensively redeveloped since the smelter stopped operating. Contamination is likely limited to subsurface and groundwater impacts. On September 25, 2001, EPA, the State of Colorado, and Asarco entered into an Administrative Order on Consent in which Asarco agreed to perform a remedial investigation and feasibility study for OU2.

Operable Unit 3 (OU3) is defined as the location of the former Argo Smelter and includes all environmental media impacted by releases of hazardous substances which resulted from the operation of that smelter. OU3 is EPA's third priority in the VB/I-70 Site. EPA will be the lead agency for remedial response activities at OU3, and it is expected that they will be financed by the Superfund.

6. Remedial Investigation Findings

A study and two additional investigations were performed between 1998 and 2000 in support of the Remedial Investigation for OU-1. They are :

- Physico-Chemical Characterization Study
- Residential Risk Based Sampling Investigation
- Phase III Field Investigation

The Physico-Chemical Characterization Study conducted analyses on existing Phase I soil samples to generate supplementary data on the physical and chemical characteristics of the surface soils, including the relationship between bulk and fine soil fractions, contaminant phases and particle sizes, and the *in vitro* bioaccessibility of arsenic and lead in site soils.

The Residential Risk-Based Sampling Investigation involved collection of soil, dust, paint, tap water, vegetables, and biological samples and analysis for arsenic, lead, cadmium, and zinc.

The Phase III Investigation was implemented between August 1999 and November 2000. This statistically-based investigation focused on residential surface soil sampling, but also examined indoor dust sampling, garden soil and garden vegetable sampling, and school and park sampling. The sampling program initially targeted those properties that had not been sampled during the 1998 Phase I or Phase II events and subsequently encompassed all 4000 residential properties in OU1. Phase III was undertaken after EPA determined that the Phase I and Phase II sampling design was too limited to support a reliable risk assessment.

Based on the results of the Phase III investigation, additional time critical removals were performed in October, 2000 at 30 newly identified properties where arsenic concentrations exceeded 400 ppm as the 95% upper confidence limit of the yard average. This removal action was a continuation of the initial time critical removal action at OU-1 that EPA initiated in 1998. Three property owners denied EPA access to perform the time critical removal work.

Data generated from these investigations are reported in the Remedial Investigation (RI) report (EPA, 2001a) Key findings are as follows:

- a. Arsenic and lead are the contaminants of concern in residential soils in the VB/I-70 Site.
- b. Generally, metals concentrations are highest in the first two inches of soil and decrease with depth.
- c. Background levels of arsenic are well-characterized as a lognormal distribution with a mean of 8 ppm and a standard deviation of 3.6 ppm. Based on this analysis, average background levels may range from 8 ppm up to 15 ppm or slightly higher.

- d. The mean background level of lead in soil is approximately 195 ppm.
- e. There is only a weak correlation between the occurrence of elevated lead and elevated arsenic in soil, suggesting that the main sources of lead and the main sources of arsenic in yard soil are not likely to be the same.
- f. Some residential properties contain arsenic at concentrations substantially higher than the expected background levels. Properties with elevated levels of arsenic occur at widely scattered locations across the Site, with no clear spatial pattern. At an affected property, the contamination appears to be distributed across the yard area, with a fairly clear boundary between the affected property and the adjacent property. The chemical form of arsenic in soil is predominantly arsenic trioxide.
- g. Lead also occurs at elevated levels in soil at some residential properties. Elevations occur in all neighborhoods of the Site, but levels tend to be higher on the western part of the Site than the eastern part. The predominant chemical forms of lead in soil are lead arsenic oxide, lead phosphate, and lead manganese oxide.
- h. Lead was detected in paint at most locations where paint was sampled, with 130 out of 144 samples having values above 1 mg/cm². These data suggest that interior and/or exterior leaded paint might be a source of lead exposure in area children, either directly (by paint chip ingestion), or indirectly (by ingestion of dust or soil containing paint chips).
- i. EPA obtained access to and sampled approximately 3000 of the 4000 targeted properties. Summary statistics, based on the average values at each property and stratified by neighborhood, are summarized in Table 2.

B. Other Actions to Date

1. Previous Actions

EPA undertook a Time Critical Removal Action in September, 1998, to remove and replace 12" of soil from properties where average surface soil concentrations of arsenic exceeded 450 ppm and/or average surface soil concentrations of lead exceeded 2000 ppm. An Action Memorandum for this removal action was signed on September 16, 1998.

This removal action was continued in September, 2000. The level of arsenic in soil that required a removal was lowered to 400 ppm. The level of lead in soil that required a removal action remained 2000 ppm. An Action Memorandum Amendment to increase the scope of the response action and to request an exemption from the 12 month and \$2 million statutory limitations was signed on April 18, 2000.

The Time Critical Removal Action(s) effectively addressed the short-term risks to children within OU1 by removal of contaminated soils from 48 residential properties. The total cost of these removal actions was \$2,620,000.

2 Current Action

The non-time-critical removal action proposed in this Memorandum is a new response that will address risks that are unacceptable, but not time critical in nature. The findings of the Remedial Investigation and Feasibility Study at OU-1 provide the basis for this proposed non-time-critical removal action. The Remedial Investigation and Feasibility Study are equivalent to the Engineering Evaluation/Cost Analysis required by the NCP (40 CFR Part 300.415(b)(4)(i)) to support a non-time-critical removal action.

C. State and Local Authorities' Roles

State and local agencies are actively involved in EPA's activities at the VB/I-70 Site. Technical and EJ issues are discussed at regularly scheduled meetings of the VB/I-70 Site Working Group. Participants in the Working Group include representatives of EPA, CDPHE, the City and County of Denver, the Technical Assistance Grant recipient, and neighborhood groups.

III. Threats to Public Health or Welfare or the Environment, and Statutory and Regulatory Authorities

A Threats to Public Health or Welfare

Using the extensive data from the Phase III program, EPA completed a quantitative baseline human health risk assessment (EPA, 2001b) which evaluated current and anticipated future exposure of residents within OU1 to concentrations of arsenic and lead measured in soil collected from their yards. Both the average and reasonable maximum exposure scenarios were evaluated.

The reasonably anticipated future land use of the residential area of OU1 is residential. It is not expected that the current residential land use will change.

EPA relied on guidance contained in the Office of Solid Waste and Emergency Response (OSWER) Directive 9355.0-30 (EPA, 1991) to determine the level of risk that is unacceptable, warranting response action. Individual yards where the cancer risk based on reasonable maximum exposure is predicted to be greater than 10^{-4} and/or the non-cancer hazard quotient (HQ) is predicted to be greater than 1 were identified as candidates for non-time-critical removal action. This is consistent with EPA regulations in the National Contingency Plan (NCP), (40 CFR Part 300) that establish a range of acceptable risk as 10^{-6} - 10^{-4} .

The baseline human health risk assessment (EPA, 2001b) indicates:

Cancer risks exceed 1×10^{-4} for reasonable maximum levels of exposure where the 95% upper confidence limit on the yard wide arithmetic mean (the 95 UCL) arsenic concentration is 240 ppm or greater. The exposure pathways of concern are incidental soil ingestion and ingestion of home grown garden vegetables.

EPA defines an acceptable concentration of lead in soil as the level at which there is no more than a 5% chance that similarly exposed children will have a blood lead level that exceeds 10 micrograms per deciliter (ug/dL). EPA relied on the Integrated Exposure/Uptake Biokinetic (IEUBK) model to assess the potential for elevated blood lead levels in children exposed to soil within the VB/I-70 Site OU-1. Considering the range of soil concentrations predicted by the IEUBK model and available information on blood lead levels measured in children who live in VB/I-70, EPA determined that properties where the yard-wide mean concentration of lead in soil is greater than 540 ppm require non-time-critical removal action to protect children from unacceptable risk of health effects related to exposure to lead in soil. The exposure pathway of concern is incidental soil ingestion.

Individual properties where the arsenic levels equal or exceed 240 ppm as the 95 UCL or the lead levels exceed 540 ppm as the yard wide average pose an unacceptable risk to residents living there. Accordingly, a non-time-critical removal action is deemed appropriate under the National Contingency Plan (40 CFR Part 300.415(b)(2)) because:

- (i) Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants
- (vii) The availability of other appropriate federal or state response mechanisms to respond to the release. There is no other existing mechanism to respond to the release of arsenic and lead in soils within OU 1 of the VB/I-70 Site.

B Threats to the Environment

The primary threat identified is exposure to human populations. There is no identified threat to ecological populations.

IV ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances from this Site, if not addressed by implementing the non-time-critical response action selected in this Action Memorandum, may present an imminent and substantial endangerment to public health or welfare or the environment.

V PROPOSED ACTION AND ESTIMATED COSTS

A. Proposed Action

1 Proposed Action Description

The proposed action will prevent exposure to soils containing arsenic or lead in concentrations predicted to present an unacceptable risk of adverse health effects to children and adult residents under the reasonable maximum exposure scenario.

At properties where the 95 UCL concentration of arsenic equals or exceeds 240 ppm or the yard-wide average concentration of lead exceeds 540 ppm, accessible surface soils will be excavated to a depth of 12 inches. Accessible soils are defined as soils in grass covered and bare yard areas, gravel covered driveways and parking areas, and flower and vegetable gardens, except as described below. Excavation will not be performed in areas that are covered by brick or pavement surfaces such as concrete pads, patios, paths, and driveways; areas where permanent structures are present such as houses, garages, crawl spaces, and wooden decks; or areas covered by large landscaping items such as retaining walls and water features.

Property owners will be required to sign an access agreement that grants access to EPA in order to perform and complete all work. The specific scope of soil removal and restoration at a given property will be agreed upon with the property owner prior to beginning excavation. The agreement will be documented in a individual property "Site Removal Plan" which the property owner and EPA will review and sign before excavation begins at that property. Some owners may be reluctant to agree to allow gardens and flowerbeds to be removed. Therefore, soil samples will be collected from each vegetable garden and flower bed an owner prefers to keep. The soil samples will be analyzed for arsenic and lead. Gardens or flowerbeds with arsenic concentrations less than 70 ppm and lead concentrations equal to or less than 400 ppm will be left in place. Otherwise, the gardens or flowerbeds will be excavated and removed.

Soil removal will also be performed in road apron areas (soil areas between sidewalks and streets) adjacent to properties undergoing soil removal. Access to these areas will be obtained from the City and County of Denver.

Excavated soils will be transported off-site for disposal at an appropriate facility. All off-site disposal will occur in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121(d)(3) and 40 CFR 300.440. Disposal options include a number of regional solid and hazardous waste disposal facilities. Another potential option is to relocate the soils to the Asarco Globe Plant where they would be managed in a manner consistent with soils excavated as part of the South Globeville Residential Remediation Project and closure plans for the plant site. The disposal facility will be identified by EPA prior to beginning excavation activities and based on results of characterization of the soils as hazardous or solid waste. The required sampling and analysis of soils to determine the appropriate disposal facility will be performed in accordance with an EPA approved Sampling and Analysis Plan. Excavated soil may be consolidated and stored within a secure staging area prior to transportation and disposal.

Excavated areas will be backfilled with clean replacement materials that are of comparable physical quality than the materials that were removed. Excavated yard areas will be restored with subsoil and topsoil or, if the property owner agrees, decorative rock and gravel options to reduce future water use. The options will be the presented to the property owner for a decision prior to excavation at a property. Excavated gardens and flowerbeds will be restored with garden soil. Excavated driveway and parking areas will be restored with compacted road base and gravel. Replacement soils will have properties that promote plant growth (for those areas to be re-planted) and provide suitable drainage.

If a sprinkler system is present, the surrounding soil will be either excavated by hand, if practical, or the system will be removed and disposed with other debris. In these cases, generally the sprinkler heads will be removed and saved along with major components such as manifolds, valves and controllers. The pipes will be removed and disposed. Prior to backfill, new pipes will be installed and the salvaged components will be replaced.

Fences will generally be removed, salvaged, and replaced upon completion of backfill. Where feasible to leave in place during excavation, handwork around posts will be performed to maintain fence stability and prevent damage. Damaged fences or fences that cannot be re-installed following removal will be replaced with a new fence of similar type to the original.

Following backfill, areas will be restored to match original conditions to the maximum extent practicable. Areas covered with grass will be re-vegetated with seed or sod to achieve vegetated cover similar to the original condition. The property owner will be presented with decorative rock and gravel options to minimize the sodded or seeded area in order to minimize future water use. Replacement plants and vegetation of same or similar species and number will be installed in flowerbeds and gardens. Annual plants will not be replaced. EPA will work with the Denver Water Board to identify candidate xeric plants as options for replacement vegetation. The xeric options will be presented to the property owner for a decision prior to beginning soil removal activities at the property.

All materials such as fences, lawn ornaments, dog runs, and other items that were moved to allow soil removal will be restored to their original location and any incidental damage to buried sprinkler systems and sidewalks will be repaired.

Properties re-vegetated with sod will be maintained for thirty days, and properties re-vegetated with seed will be maintained for sixty days. Maintenance will include all required watering and fertilizer applications but will not include mowing. Watering will adhere to requirements of the Denver Water Board.

Photographs and/or videotapes will be used to document pre- and post-construction conditions of properties, streets, and sidewalks.

After property soil removal and restoration and maintenance has been performed, the property owner will sign an as-built version of the Site Removal Map to document that the work has been satisfactorily completed.

Additional details of the removal activities will be described in an EPA-approved work plan

2. Contribution to remedial performance

The proposed removal action described in this Action Memorandum is appropriate and consistent with the final remedial action EPA expects to take at OU1 of the VB/I-70 Site. EPA is currently developing a preferred alternative for remedial action for VB/I-70 OU-1 that selects soil

removal and replacement at residential properties where predicted risks are lower than the non-time-critical removal candidates, but still deemed to be unacceptable by EPA.

The proposed non-time critical removal action described in this memorandum will accomplish the required soil removal work at 143 of the properties where the concentrations of lead and arsenic are the highest. The removal action allows EPA to provide protection to residents at these 143 properties while continuing to plan for remedial action. The non-time-critical removal action proposed in this Action Memorandum therefore contributes to the efficient performance of any anticipated long term remedial action with respect to the releases of lead and arsenic at the VB/I-70 Site.

3 Description of alternative technologies

EPA considered a range of alternative technologies for achieving the removal objectives of preventing exposure of residents of VB/I-70 OU-1 to soils containing arsenic or lead in concentrations predicted to result in unacceptable chronic cancer and subchronic non-cancer risks under the reasonable maximum exposure scenario. The alternatives included institutional controls, public health actions, containment, soil tilling and stabilization, and soil removal and disposal. The removal action of soil removal and disposal was determined to be most effective, implementable, and cost effective in meeting the non-time critical removal objectives.

4. Engineering Evaluation/Cost Analysis (EE/CA)

EPA completed a Remedial Investigation for VB/I-70 OU-1 in August, 2001 (EPA, 2001a). EPA completed a Feasibility Study for VB/I-70 OU-1 in November, 2001 (EPA 2001b). The findings of the remedial investigation and feasibility study at OU-1 provide the basis for the removal action. The remedial investigation and feasibility study are equivalent to the Engineering Evaluation/Cost Analysis required by the NCP (40 CFR Part 300.415(b)(4)(i)) to support a non-time critical removal action.

5. Applicable or Relevant and Appropriate Requirements (ARARS)

The proposed non-time critical removal action will attain, to the maximum extent practicable, the ARARS listed in Tables 3, 4, and 5.

6. Project Schedule

The field construction work of the proposed non-time critical removal action soil is scheduled to begin in April, 2003. The planned completion date is September 30, 2003. Maintenance and monitoring activities will continue until April, 2004. The schedule may be extended in the event of adverse weather conditions or difficulties in gaining access to properties.

B Estimated Costs

Region 8 will seek Remedial Action funding from EPA Headquarters for the Non-Time Critical Removal Action described in this Action Memorandum.

1 Extramural Costs

Corps of Engineers Rapid Response

Direct Costs	\$2,608,700
Indirect Costs	\$ 217,390
Contingency-15% of Direct and Indirect	<u>\$ 423,900</u>
Total Extramural Costs	\$3,250,000

2 Intramural Costs

Direct Costs	\$ 33,000
Indirect Costs	<u>\$ 66,000</u>
Total Intramural Costs	\$ 99,000
Total costs of previous removal actions	\$2,649,000
Total Removal Project Ceiling	\$5,998,000

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

If the proposed non-time critical removal action is not taken at the site, residents of the 143 properties will be required to wait until the final remedial action before soils with unacceptably high levels of lead or arsenic are removed. The final remedial action may require 1-2 more years to implement, depending on funding availability. Particularly for the properties with lead-impacted soils, this represents a situation where children at these properties are predicted by the IEUBK Model to have a greater than 5% chance of experiencing elevated blood lead levels from exposure to lead in soil.

In addition, the affected residents at the 143 properties have been informed by EPA in an initial proposed plan released in May, 2002, that their residences contain arsenic or lead in unacceptably high levels. This information has caused the residents stress due to their concern about the health risk, particularly for those families with young children. If the soils are not addressed in April, 2003 as proposed, EPA may prolong the worry and stress of the affected residents of this EJ community who are also concerned about the many environmental impacts that affect them daily as a result of non-Superfund sources of contamination.

VII. OUTSTANDING POLICY ISSUES

Provisions for cost-sharing for the proposed non-time critical removal action are an issue because EPA has decided to seek State cost-share under CERCLA section 104(c)(3)(ii). EPA is currently negotiating a State Superfund Agreement for the proposed non-time critical removal action with the State of Colorado.

VIII. ENFORCEMENT

A confidential Enforcement Memorandum is included as Attachment 1.

IX. RECOMMENDATION

This decision document represents the selected non-time-critical removal action for the VB/I-70 Site OU-1, in the City and County of Denver, Colorado, developed in accordance with CERCLA, as amended, and not inconsistent with the NCP. This decision is based on the administrative record for the Site.

Conditions at the site meet the NCP section 300.415(b)(2) criteria for a removal. By signing this Action Memorandum, EPA has determined that continued response action is otherwise appropriate and consistent with the remedial action to be taken in accordance with CERCLA Section 104(c)(1)(c) and 40 CFR 300.415(b)(5)(ii), and is authorized above the \$2 million/12 month statutory threshold. I recommend your approval of the proposed removal action. The total project ceiling if approved will be \$5,994,000. Of this, an estimated \$2,620,000 comes from the Regional removal allowance and \$3,250,000 comes from new start remedial action funding.

Approve: Max H. Dodson

Date: 3-6-2003

Max H. Dodson
Assistant Regional Administrator
Office of Ecosystems Protection and Remediation

Disapprove: _____

Date: _____

Max H. Dodson
Assistant Regional Administrator
Office of Ecosystems Protection and Remediation

REFERENCES

Asarco, 2001. Draft Technical Memorandum, Draft Facility Conceptual Model, Omaha and Grant Smelter Location, On-facility Soils Operable Unit 2, Vasquez Boulevard/Interstate 70 Site. Prepared by EnviroGroup for Asarco, Inc. December, 2001.

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Table 1

List of Candidate Properties for
Non-Time Critical Removal Action
VB/I-70 Site OU-1

(To be inserted in final action memo)

address	neighborhood	arsenic EPC
3549 RACE ST	COLE	391.0
3622 LAFAYETTE ST	COLE	391.0
3551 MILWAUKEE ST	CLAYTON	383.0
4809 MILWAUKEE ST	SWANSEA	382.0
4650 FILLMORE ST	SWANSEA	380.0
4965 SAINT PAUL ST	SWANSEA	378.0
3401 BRUCE RANDOLPH AVE	CLAYTON	371.0
4705 CLAYTON ST	SWANSEA	368.0
3230 GAYLORD ST	COLE	364.0
3447 SAINT PAUL ST	CLAYTON	357.0
4640 FILLMORE ST	SWANSEA	344.0
3408 MILWAUKEE ST	CLAYTON	343.0
3440 JACKSON ST	CLAYTON	341.0
4830 CLAYTON ST	SWANSEA	338.0
3742 DELGANY ST	GLOBEVILLE	335.0
3536 ELIZABETH ST	CLAYTON	327.0
3655 HARRISON ST	CLAYTON	327.0
4653 HIGH ST	SWANSEA	326.0
3541 MILWAUKEE ST	CLAYTON	319.0
3631 BRUCE RANDOLPH AVE	CLAYTON	317.0
3423 SAINT PAUL ST	CLAYTON	316.0
4315 STEELE ST	SWANSEA	315.0
4811 CLAYTON ST	SWANSEA	314.0
3637 MONROE ST	CLAYTON	314.0
3432 JOSEPHINE ST	CLAYTON	313.0

4319 FILLMORE ST	SWANSEA	312.0
3350 COLUMBINE ST	CLAYTON	307.0
4660 MILWAUKEE ST	SWANSEA	305.0
3528 ELIZABETH ST	CLAYTON	303.0
3535 CLAYTON ST	CLAYTON	303.0
4635 FILLMORE ST	SWANSEA	301.0
4935 ADAMS ST	SWANSEA	300.0
3421 VINE ST	COLE	297.0
3350 GILPIN ST	COLE	293.0
3906 JACKSON ST	CLAYTON	291.0
3927 ADAMS ST	CLAYTON	291.0
4920 MILWAUKEE ST	SWANSEA	291.0
3552 ELIZABETH ST	CLAYTON	288.0
4318 SAINT PAUL ST	SWANSEA	287.0
3329 HIGH ST	COLE	285.0
4909 MILWAUKEE ST	SWANSEA	281.0
4744 GAYLORD ST	SWANSEA	278.0
3542 VINE ST	COLE	274.0
4459 THOMPSON CT	SWANSEA	274.0
4995 STEELE ST	SWANSEA	273.0
4932 STEELE ST	SWANSEA	271.0
4950 MILWAUKEE ST	SWANSEA	270.0
4340 JOSEPHINE ST	SWANSEA	269.0
3515 HARRISON ST	CLAYTON	266.0
4850 CLAYTON ST	SWANSEA	266.0
3245 JOSEPHINE ST	CLAYTON	265.0
3450 SAINT PAUL ST	CLAYTON	264.0
3705 MADISON ST	CLAYTON	263.0
3724 YORK ST	CLAYTON	260.0
3620 SAINT PAUL ST	CLAYTON	259.0
4422 DELAWARE ST	GLOBEVILLE	259.0
3441 SAINT PAUL ST	CLAYTON	258.0

		LEAD EPC
Property Address	Neighborhood	(Mean)
3339 ELIZABETH ST	CLAYTON	1130.7
3786 GILPIN ST	COLE	1129.7
3722 RACE ST	COLE	1004.3
3760 FRANKLIN ST	COLE	953.7
4738 GAYLORD ST	ELYRIA	921.7
3551 MILWAUKEE ST	CLAYTON	903.7
3743 FRANKLIN ST	COLE	845.0
3521 DELGANY ST	GLOBEVILLE	835.0
1520 E 35TH AVE	COLE	798.0
3541 WILLIAMS ST	COLE	797.0
4143 FOX ST	GLOBEVILLE	782.3
4340 JOSEPHINE ST	SWANSEA	776.0
3343 ELIZABETH ST	CLAYTON	769.0
3784 GILPIN ST	COLE	728.3
3911 HUMBOLDT ST	COLE	726.0
3646 DELGANY ST	GLOBEVILLE	725.3
3408 MILWAUKEE ST	CLAYTON	715.0
3529 FRANKLIN ST	COLE	711.3
3830 FRANKLIN ST	COLE	697.7
3541 MILWAUKEE ST	CLAYTON	690.0
4539 COLUMBINE ST	SWANSEA	678.7
4727 WILLIAMS ST	SWANSEA	672.3
3209 GAYLORD ST	COLE	669.3
3321 ELIZABETH ST	CLAYTON	660.0
3326 WILLIAMS ST	COLE	657.0
4351 RACE ST	ELYRIA	644.0
3640 HUMBOLDT ST	COLE	641.0
3730 YORK ST	CLAYTON	637.0
3522 MARION ST	COLE	635.7
4205 FOX ST	GLOBEVILLE	635.3
4616 RACE ST	SWANSEA	627.7
3838 GILPIN ST	COLE	625.7
3842 GILPIN ST	COLE	624.3
3531 LAFAYETTE ST	COLE	623.7
4781 RACE ST	ELYRIA	618.3
3659 MARION ST	COLE	613.7
3754 MARION ST	COLE	610.7
3616 WILLIAMS ST	COLE	610.3
3720 DELGANY ST	GLOBEVILLE	609.7
5044 STEELE ST	SWANSEA	606.0
3834 FRANKLIN ST	COLE	605.3
3549 LAFAYETTE ST	COLE	602.7
4442 JOSEPHINE ST	SWANSEA	601.0

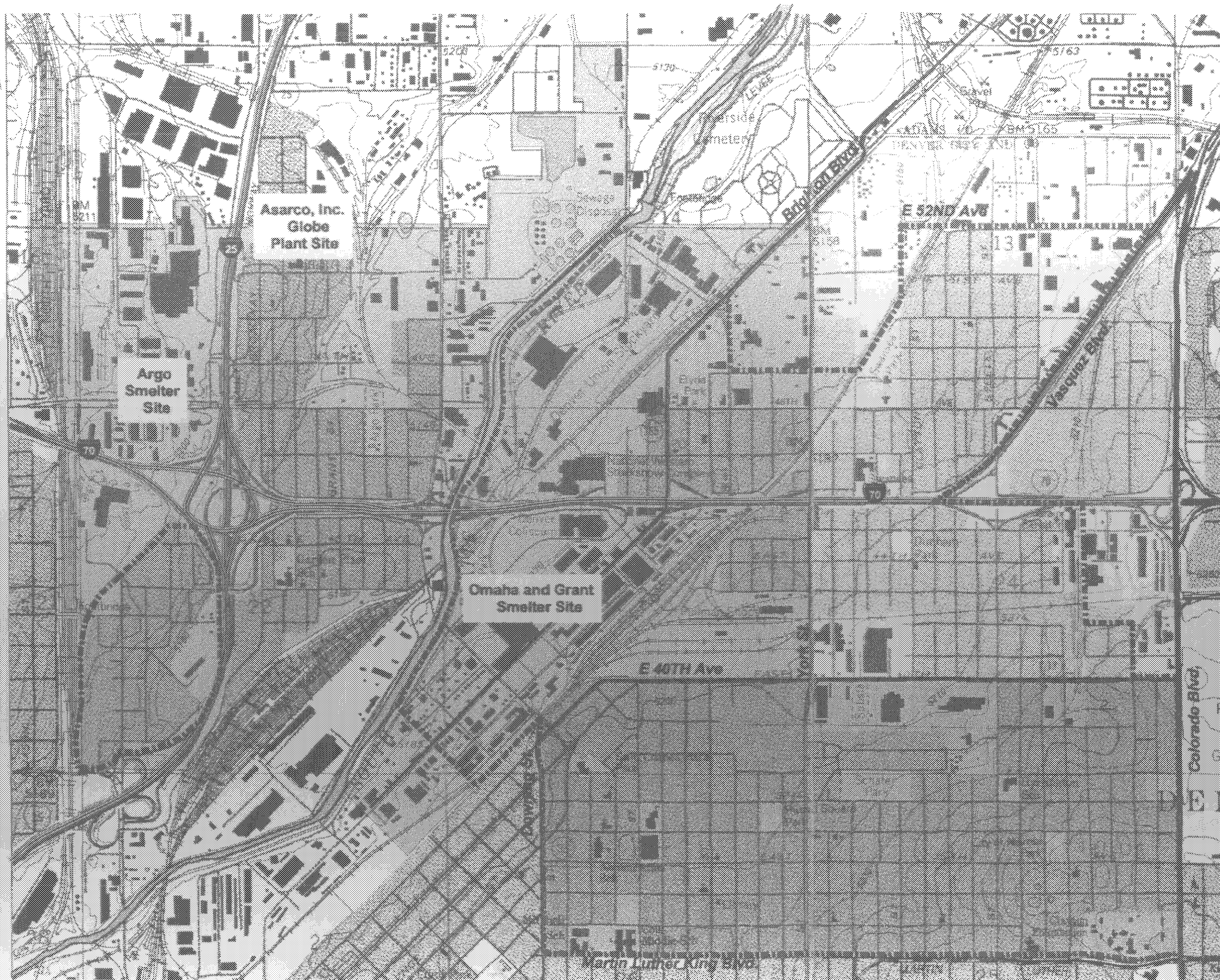
3441 GARFIELD ST	CLAYTON	257.0
4775 HIGH ST	SWANSEA	254.0
3521 JOSEPHINE ST	CLAYTON	250.0
3710 MADISON ST	CLAYTON	249.0
4785 CLAUDE CT	SWANSEA	248.0
3560 ELIZABETH ST	CLAYTON	243.0
3720 VINE ST	COLE	243.0
3337 STEELE ST	CLAYTON	241.0
3452 JOSEPHINE ST	CLAYTON	240.0

3329 HIGH ST	COLE	598.7
4620 RACE ST	ELYRIA	598.7
3515 LAFAYETTE ST	COLE	598.3
3721 MARION ST	GLOBEVILLE	598.0
3415 WILLIAMS ST	COLE	594.0
1815 E 36TH AVE	COLE	591.7
3519 LAFAYETTE ST	COLE	590.7
3209 HIGH ST	COLE	588.3
3942 WILLIAMS ST	COLE	587.0
4654 HIGH ST	ELYRIA	585.7
3453 FRANKLIN ST	COLE	583.3
4710 RACE ST	SWANSEA	583.0
4712 BRIGHTON BLVD	ELYRIA	580.3
4314 JOSEPHINE ST	SWANSEA	579.0
3781 GILPIN ST	COLE	578.0
4309 COLUMBINE ST	SWANSEA	575.7
3744 MARION ST	COLE	574.7
3511 HUMBOLDT ST	COLE	574.3
4780 COLUMBINE ST	SWANSEA	573.0
3450 SAINT PAUL ST	CLAYTON	572.3
3523 LAFAYETTE ST	COLE	569.3
3746 BRIGHTON BLVD	GLOBEVILLE	565.7
3346 GILPIN ST	COLE	563.7
4736 VINE ST	ELYRIA	562.7
3609 HIGH ST	COLE	559.3
4658 WILLIAMS ST	ELYRIA	559.3
4680 CLAYTON ST	SWANSEA	557.7
3433 GILPIN ST	COLE	556.7
3754 DELGANY ST	GLOBEVILLE	554.0
3339 GAYLORD ST	COLE	551.7
4775 RACE ST	SWANSEA	551.0
4782 CLAUDE CT	SWANSEA	544.7
3733 WYNKOOP ST	GLOBEVILLE	540.7

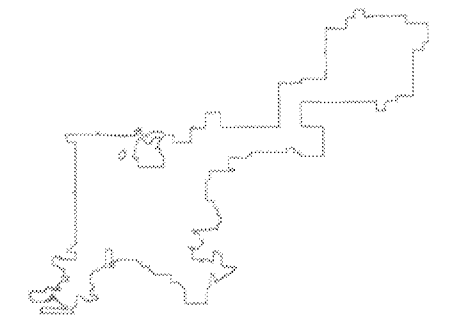
Color Map(s)

The following pages
contain color that does
not appear in the
scanned images.

To view the actual images, please
contact the Superfund Records
Center at (303) 312-6473.



Location of VB/I-70 Site



City and County of Denver



Washington



Legend

Study Area Boundary

Stream or River

Neighborhood

CLAYTON

COLE

ELYRIA

GLOBEVILLE

SWANSEA

Map Base:

USGS 7.5' Quadrangle

Commerce City

1,000 500 0 1,000 2,000

Feet

200 100 0 200 400 600

Meters

Vasquez Boulevard / I-70
Operable Unit 1
Remedial Investigation Report

Figure 1

Site Location

Project No: RAC 88-W7-0039 WA 004-RICO-089R

File: Q:\4994\1004\RI-FS\vb170_site.eps

**Table 2. Phase III Investigation
Summary Statistics of the Average Concentrations in Residential Yards**

Neighborhood	Total Properties Sampled	Percentile Distribution of Average Arsenic Concentrations (ppm)					
		5th	25th	50th	75th	95th	maximum
Clayton	902	5.5 ppm	5.5 ppm	8.7 ppm	38.3 ppm	168 ppm	758 ppm
Cole	796	5.5 ppm	7.7 ppm	11.8 ppm	24.8 ppm	142.1 ppm	660 ppm
Elyria	59	5.5 ppm	8.5 ppm	12.3 ppm	22.3 ppm	97.2 ppm	431 ppm
Globeville	63	5.5 ppm	8.5 ppm	13.8 ppm	22.3 ppm	123.3 ppm	297 ppm
Swansea	1166	5.5 ppm	5.5 ppm	9.7 ppm	30.6 ppm	128.3 ppm	604 ppm
ALL	2986	5.5 ppm	5.5 ppm	10.5 ppm	30.3 ppm	144.9 ppm	758 ppm

Neighborhood	Total Properties Sampled	Percentile Distribution of Average Lead Concentrations (ppm)					
		5th	25th	50th	75th	95th	maximum
Clayton	902	76 ppm	106 ppm	140 ppm	193 ppm	337 ppm	1131 ppm
Cole	796	135 ppm	221 ppm	288 ppm	371 ppm	538 ppm	1130 ppm
Elyria	59	181 ppm	299 ppm	372 ppm	438 ppm	601 ppm	922 ppm
Globeville	63	171 ppm	257 ppm	332 ppm	482 ppm	633 ppm	835 ppm
Swansea	1166	76 ppm	119 ppm	164 ppm	250 ppm	410 ppm	776 ppm
ALL	2986	81 ppm	127 ppm	188 ppm	292 ppm	465 ppm	1131 ppm

SUMMARY OF POTENTIAL CHEMICAL-SPECIFIC ARARs
VB/I-70 OU1

Standard, Requirement or Criteria	Potentially Applicable	Potentially Relevant and Appropriate	Citation	Description	Comment
FEDERAL					
National Ambient Air Quality Standards	No	Yes	40 CFR Part 50	Establishes ambient air quality standards for certain "criteria pollutants" to protect public health and welfare. Standard is: 1.5 micrograms lead per cubic meter maximum - arithmetic mean averaged over a calendar quarter	National ambient air quality standards (NAAQS) are implemented through the New Source Review Program and State Implementation Plans (SIPs). The federal New Source Review Program addresses only major sources. Emissions associated with proposed remedial action at VB/I70 OU1 would be limited to fugitive dust emissions associated with earth moving activities during construction. These activities will not constitute a major source. Therefore, attainment and maintenance of NAAQS pursuant to the New Source Review Program are not applicable. However, the standards relating to lead are relevant and appropriate.
STATE					
Colorado Air Pollution Prevention and Control Act	Yes	—	5 CCR 1001-14;	Applicants for construction permits are required to evaluate whether the proposed source will exceed NAAQS.	Construction activities associated with potential remedial actions at the site would be limited to generation of fugitive dust emissions. Colorado regulates fugitive emissions through Regulation No. 1. Compliance with applicable provisions of the Colorado air quality requirements would be achieved by adhering to a fugitive emissions dust control plan prepared in accordance with Regulation No. 1. This plan will discuss monitoring requirements, if any, necessary to achieve these standards.
	No	Yes	5 CCR 1001-10 Part C (I) Regulation 8	Regulation No. 8 sets emission limits for lead from stationary sources at 1.5 micrograms per standard cubic meter averaged over a one-month period.	Regulation is for stationary sources and is therefore not applicable. However, it is relevant and appropriate. Applicants are required to evaluate whether the proposed activities would result in an exceedance of this standard. The potential remedial actions at the site are not expected to exceed the emission levels for lead, although some lead emissions may occur. Compliance with the requirements of Regulation No. 8 would be achieved by adhering to a fugitive emissions dust control plan prepared in accordance with Regulation No. 1. This plan will discuss monitoring requirements, if any, necessary to achieve these standards.

SUMMARY OF POTENTIAL LOCATION-SPECIFIC ARARs

Standard, Requirement or Criteria	Potentially Applicable	Potentially Relevant and Appropriate	Citation	Description	Comment
SUMMARY OF POTENTIAL LOCATION-SPECIFIC ARARs					
Resource Conservation and Recovery Act (RCRA), Subtitle D	No	No	40 CFR 257	Facilities where treatment, storage, or disposal of solid waste will be conducted must meet certain location standards. These include location restrictions on proximity of airports, floodplains, wetlands, fault areas, seismic impact zones, and unstable areas.	Applicable only if interim disposal is conducted or if an onsite repository is necessary. However, because onsite disposal is not a component of any alternative under consideration, this regulation is not an ARAR.
Executive Order No. 11990 Protection of Wetlands	No	No	40 CFR § 6.302(a) and Appendix A	Minimizes adverse impacts on areas designated as wetlands.	Not ARARs as remedial actions will occur on individual yards where there are no wetlands. Also onsite disposal is not a component of any alternative under consideration.
Executive Order No. 11988 Floodplain Management	No	No	40 CFR § 6.302 & Appendix A	Pertains to floodplain management and construction of impoundments in such areas.	Not ARARs because the remedial actions do not require the occupation or modification of flood plains.
Section 404, Clean Water Act (CWA)	No	No	33 USC 1251 et seq. 33 CFR Part 330	Regulates discharge of dredged or fill materials into waters of the United States.	The Act is not an ARAR. Onsite disposal which affects waters of the US is not a component of any alternative under consideration.
Endangered Species Act	Yes	No	16 USC § 1531 et seq.; 50 CFR 200 and 402	Provides protection for threatened and endangered species and their habitats.	Due to the urban nature of the site, threatened or endangered species are highly unlikely to be present. However, the Act would be applicable if endangered species were identified and affected by the selected remedial alternative.
Wilderness Act	No	No	16 USC 1311; 16 USC 668; 50 CFR 53; 50 CFR 27	Limits activities within areas designated as wilderness areas or National Wildlife Refuge Systems.	These types of areas are not present at the site and therefore the Act is not an ARAR.

STATE ARARS					
Action	Potentially Applicable	Potentially Relevant and Appropriate	Citation	Description	Comments
Hazardous and Solid Waste: 1. Solid waste determination	Yes	--	6 CCR 1007-3 Part 260 6 CCR 1007-3 Sect. 260.30-31 6 CCR 1007-3 Sect. 261.2 6 CCR 1007-3 Sect. 261.4	A solid waste is any discarded material that is not excluded by a variance granted under 40 CFR 260.30 and 260.31. Discarded material includes abandoned, recycled, and waste-like materials.	Applicable to alternatives where contaminated soil is excavated and disposed.
2. Solid waste classification.	Yes	--	6 CCR 1007-2, Section 1	If a generator of wastes has determined that the wastes do not meet the criteria for hazardous wastes, they are classified as solid wastes.	Applicable to alternatives where contaminated soil is excavated and disposed.
3. Determination of hazardous waste.	Yes	--	6 CCR 1007-3 Sect. 262.11 6 CCR 1007-3 Part 261	Wastes generated during soil excavation activities must be characterized and evaluated according to the following method to determine whether the waste is hazardous. Excavated soil would be classified as D004 hazardous waste if the arsenic concentration from the TCLP test was greater than 5.0 milligrams per liter. Excavated soil would be classified as D008 hazardous waste if the lead concentration from the TCLP test was greater than 5.0 milligrams per liter.	Applicable to alternatives where contaminated soil is excavated and disposed.

TABLE 5
POTENTIAL ACTION-SPECIFIC ARARS

STATE ARARS					
Action	Potentially Applicable	Potentially Relevant and Appropriate	Citation	Description	Comments
Hazardous and Solid Waste: 1. Solid waste determination	Yes	--	6 CCR 1007-3 Part 260 6 CCR 1007-3 Sect. 260.30-31 6 CCR 1007-3 Sect. 261.2 6 CCR 1007-3 Sect. 261.4	A solid waste is any discarded material that is not excluded by a variance granted under 40 CFR 260.30 and 260.31. Discarded material includes abandoned, recycled, and waste-like materials.	Applicable to alternatives where contaminated soil is excavated and disposed.
2. Solid waste classification.	Yes	--	6 CCR 1007-2, Section 1	If a generator of wastes has determined that the wastes do not meet the criteria for hazardous wastes, they are classified as solid wastes.	Applicable to alternatives where contaminated soil is excavated and disposed.
3. Determination of hazardous waste.	Yes	--	6 CCR 1007-3 Sect. 262.11 6 CCR 1007-3 Part 261	Wastes generated during soil excavation activities must be characterized and evaluated according to the following method to determine whether the waste is hazardous. Excavated soil would be classified as D004 hazardous waste if the arsenic concentration from the TCLP test was greater than 5.0 milligrams per liter. Excavated soil would be classified as D008 hazardous waste if the lead concentration from the TCLP test was greater than 5.0 milligrams per liter.	Applicable to alternatives where contaminated soil is excavated and disposed.

TABLE 5
POTENTIAL ACTION-SPECIFIC ARARS (continued)

STATE ARARS					
Action	Potentially Applicable	Potentially Relevant and Appropriate	Citation	Description	Comments
6. Air emissions from diesel-powered vehicles associated with excavation and backfill operations.	Yes	--	5 CCR 1001-15, Regulation 12	<p>Colorado Diesel-Powered Vehicle Emissions Standards for Visible Pollutants apply to motor vehicles intended, designed, and manufactured primarily for use in carrying passengers or cargo on roads, streets, and highways, and state as follows:</p> <ol style="list-style-type: none"> 1) No person shall emit or cause to be emitted into the atmosphere from any diesel-powered motor vehicle weighting 7,500 pounds and less, empty weight, any air contaminant, for a period greater than five (5) consecutive seconds, which is of such a shade or density as to obscure an observer's vision to a degree in excess of 40% opacity. 2) No person shall emit or cause to be emitted into the atmosphere from any diesel-powered motor vehicle weighing more than 7,500 pounds, empty weight, any air contaminant, for a period greater than five (5) consecutive seconds, which is of such a shade or density as to obscure an observer's vision to a degree in excess of 35% opacity, with the exception of subpart "C". 3) Any diesel-powered motor vehicle exceeding these requirements shall be exempt for a period of 10 minutes if the emissions are a direct result of a cold engine startup and provided the vehicle is in a stationary position. 4) These standards shall apply to motor vehicles intended, designed, and manufactured primarily for travel or use in transporting persons, property, auxiliary equipment, and/or cargo over roads, streets, and highways. 	Applicable to alternatives that include transportation of soil.

TABLE 5
POTENTIAL ACTION-SPECIFIC ARARS (continued)

STATE ARARS					
Action	Potentially Applicable	Potentially Relevant and Appropriate	Citation	Description	Comments
7. Odor emissions.	Yes	--	5 CCR 1001-4, Regulation 2	Colorado odor emission regulations require that no person shall allow emission of odorous air contaminants that result in detectable odors that are measured in excess of the following limits: For residential and commercial areas – odors detected after the odorous air has been diluted with seven more volumes of odor-free air.	Applicable to alternatives that include construction activities in residential areas.
8. Smoke and opacity.	No	Yes	5 CCR 1001-3, Regulation 1, Sect. II.A	Excavation and backfilling of soils must be conducted in a manner that will not allow or cause the emission into the atmosphere of any air pollutant that is in excess of 20% opacity.	Regulation specifically exempts fugitive emissions generated by excavation/backfilling activities. Relevant and appropriate to alternatives that include excavation and backfilling of soils.
9. Ambient Air Standard for Total Suspended Particulate Matter.	Yes	--	5 CCR 1001-14	Air quality standards for particulates (as PM ₁₀) are 50 µg/m ³ ; annual geometric mean, 150 µg/m ³ 24 hour.	Applicable to alternatives that include actions that generate fugitive dust.
10. Ambient Air Standard for Lead.	Yes	--	5CCR 1001-10, Regulation 8	Monthly air concentration must be less than 1.5 µg/m ³ .	Applicable to alternatives that include actions on contaminated soil that generate fugitive dust.

TABLE 5
POTENTIAL ACTION-SPECIFIC ARARS (continued)

STATE ARARS																							
Action	Potentially Applicable	Potentially Relevant and Appropriate	Citation	Description	Comments																		
11. Noise abatement.	Yes	--	C.R.S., Section 25-12-103	<p>The Colorado Noise Abatement Statute provides that:</p> <p>a. "Applicable activities shall be conducted in a manner so any noise produced is not objectionable due to intermittence, beat frequency, or shrillness. Noise is defined to be a public nuisance if sound levels radiating from a property line at a distance of twenty-five feet or more exceed the sound levels established for the following time periods and zones:</p> <table> <tr> <td></td> <td>7:00 a.m. to next 7:00 p.m.</td> <td>7:00 p.m. to next 7:00 a.m.</td> </tr> <tr> <td>Zone</td> <td></td> <td></td> </tr> <tr> <td>Residential</td> <td>55 db(A)</td> <td>50 db(A)</td> </tr> <tr> <td>Commercial</td> <td>60 db(A)</td> <td>55 db(A)</td> </tr> <tr> <td>Light Industrial</td> <td>70 db(A)</td> <td>65 db(A)</td> </tr> <tr> <td>Industrial</td> <td>80 db(A)</td> <td>75 db(A)</td> </tr> </table> <p>b. In the hours between 7:00 a.m. and the next 7:00 p.m., the noise levels permitted in Requirement a (above) may be increased by ten decibels for a period of not to exceed fifteen minutes in any one-hour period.</p> <p>c. Periodic, impulsive, or shrill noises shall be considered a public nuisance when such noises are at a sound level of five decibels less than those listed in Requirement a (above).</p> <p>d. Construction projects shall be subject to the maximum permissible noise levels specified for industrial zones for the period within which construction is to be completed pursuant to any applicable construction permit issued by proper authority or, if no time limitation is imposed, for a reasonable period of time for completion of the project.</p> <p>e. For the purpose of this article, measurements with sound level meters shall be made when the wind velocity at the time and place of such measurement is not more than five miles per hour.</p>		7:00 a.m. to next 7:00 p.m.	7:00 p.m. to next 7:00 a.m.	Zone			Residential	55 db(A)	50 db(A)	Commercial	60 db(A)	55 db(A)	Light Industrial	70 db(A)	65 db(A)	Industrial	80 db(A)	75 db(A)	Applicable to alternatives that include construction activities.
	7:00 a.m. to next 7:00 p.m.	7:00 p.m. to next 7:00 a.m.																					
Zone																							
Residential	55 db(A)	50 db(A)																					
Commercial	60 db(A)	55 db(A)																					
Light Industrial	70 db(A)	65 db(A)																					
Industrial	80 db(A)	75 db(A)																					

TABLE 5
POTENTIAL ACTION-SPECIFIC ARARS (continued)

STATE ARARS					
Action	Potentially Applicable	Potentially Relevant and Appropriate	Citation	Description	Comments
12. Transportation of Hazardous Waste.	Yes	--	8 CCR 1507	Rules regarding Transportation of Hazardous Substances.	Applicable to alternatives that include transportation of contaminated soil.

TABLE 5
POTENTIAL ACTION-SPECIFIC ARARS (continued)

FEDERAL ARARS					
Standard, Requirement or Criteria	Potentially Applicable	Potentially Relevant and Appropriate	Citation	Description	Comments
Criteria for Classification of Solid Waste and Disposal Facilities and Practices	Yes	--	40 CFR Part 257	Establishes criteria for use in determining solid wastes and disposal requirements.	Would be applicable if solid wastes are generated (such as excavated soil).
Criteria for Classification of Hazardous Waste and Disposal Facilities and Practices	Yes	--	40 CFR 264	Establishes criteria for use in determining hazardous wastes and disposal requirements. Excavated soil would be classified as D004 hazardous waste if the arsenic concentration from the TCLP test was greater than 5.0 mg/l. Excavated soil would be classified as D008 hazardous waste if the lead concentration from the TCLP test was greater than 5.0 mg/l.	Would be applicable if hazardous wastes are generated. It is noted that previous soil removed had higher concentrations of lead and arsenic and were not hazardous wastes. However, these regulations are potentially applicable.
National Ambient Air Quality Standards	No	Yes	40 CFR Part 50	Establishes ambient air quality standards for certain "criteria pollutants" to protect public health and welfare. Standards are: 150 micrograms per cubic meter for particulate matter for a 24 hour period; 50 micrograms per cubic meter for particulate matter-annual arithmetic mean; 1.5 micrograms lead per cubic meter maximum - arithmetic mean averaged over a calendar quarter	National ambient air quality standards (NAAQS) are implemented through the New Source Review Program and State Implementation Plans (SIPs). The federal New Source Review Program addresses only major sources. Emissions associated with proposed remedial action at VB/I70 OU1 would be limited to fugitive dust emissions associated with earth moving activities during construction. These activities will not constitute a major source. Therefore, attainment and maintenance of NAAQS pursuant to the New Source Review Program are not applicable. However, the standards relating to particulates and to lead are relevant and appropriate.
Hazardous Materials Transportation Regulations	Yes	--	49 CFR Parts 107, 171-177	Regulates transportation of hazardous materials.	Applicable only if the remedial action involves off-site transportation of hazardous materials. The regulations affecting packaging, labeling, marking, placarding, using proper containers, and reporting discharges of hazardous materials would be potential ARARS.

ATTACHMENT 1

ENFORCEMENT CONFIDENTIAL

ENFORCEMENT ADDENDUM

February 6, 2003

PRIVILEGED

Action Memorandum for the Vasquez Boulevard/I-70 Non Time-Critical Removal Action
CERCLIS ID# CO0002259588

A. PRP Search

The Region has conducted a PRP search for the Site to identify the current property owners and past owners and operators. We have identified ASARCO Incorporated as the primary operator of 2 of the 3 smelters historically located in the general area of the VB/I-70 Site – the Globe Smelter and the Omaha & Grant Smelter. The City and County of Denver has also been identified as a current owner and a past owner/operator of most of the property located within OU2 of the Site. Other current owner or past owner/operators of OU2 of the Site include Pepsi Bottling Group, Union Pacific Railroad, the Forney Museum, the Rossi family, Mary and Roger Witulski and Bruce and Delores Hunt. The last 3 potentially responsible parties (“PRPs”) are current landowners who did not cause or contribute to the contamination and who, as small business owners, have a limited ability to pay any of EPA’s response costs. ASARCO, the City and County of Denver, Pepsi and Union Pacific have all received and responded to CERCLA Section 104(e) information requests.

Preliminary information gathered to date indicates that only ASARCO may be liable for the contamination found in OU1 of the Site. However, substantial litigative risk exists in proving that ASARCO is responsible for the arsenic requiring remediation, sources other than smelter emissions may have cause the bulk of the arsenic contamination found at OU1 of the Site.

B. Notification of PRPs of Potential Liability and of the Required Removal Action

No parties have been issued notice letters for OU1.

General Notice letters were sent to the OU2 PRPs identified above on November 16, 2000.

C. Decision Whether to Issue an Order

At the present time, the Region does not intend to issue an Order to ASARCO to cleanup the OU1 residential properties. This decision is based both on litigative risk and on ASARCO's limited ability to pay EPA's cleanup costs. This limited ability to pay was recently recognized by EPA and DOJ in negotiating and lodging a consent decree which restructures ASARCO's environmental and financial obligations for all sites nationwide where ASARCO is a PRP.

D. Negotiation Strategy

EPA has initiated negotiations with ASARCO to settle its potential liabilities for OU1 of the Site. Based on ASARCO's limited ability to pay, EPA expects to obtain the use of a portion of the Globe Site as a repository for residential soils removed from the Site, rather performance of the removal or remedial action or a cash sum certain. The Site team hopes to conclude these negotiations prior to the initiation of this non-time critical removal action.

ASARCO will continue to conduct the OU2 RI/FS activities in accordance with the September 25, 2001 Administrative Order on Consent (Docket No. CERCLA-08-2001-13).